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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference NM5220	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB2002/003373	International filing date (day/month/year) 21-08-2002	Priority date (day/month/year) ---
International Patent Classification (IPC) or national classification and IPC H04L 12/18		
Applicant Nokia Corporation et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 29-10-2003	Date of completion of this report 10-11-2004
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Form PCT/IPEA/409 (cover sheet) (January 2004)

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2002/003373

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2002/003373

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-15</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-15</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-15</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The object of the invention is to solve the problem of forwarding data packets with multicast purpose to a connection-oriented network including a cellular access point (CAP, "access node"), without the need of sending one copy on each bearer to the multicast group of mobile nodes, e.g. on each association between the CAP and the mobile node.

The claimed invention covers the case where the destination address cannot be resolved at the routing device.

Documents cited in the International Search Report:

D1: EP 1071296, A

D2: WO 0158085, A

D3: EP 1093249, A

D4: Xylomenos G et al: "IP MULTICAST FOR MOBILE HOSTS", IEEE Communications magazine, pages 54- 58, XP000683443.

D5: US 6141347, A

D6: WO 0051373, A

Document D1 is considered to represent the closest prior art. D1 relates to a method to transfer data packets over a public data packet network and a mobile data packet network, to a plurality of mobile stations. To transfer public data packets (PU-DP) from an originating terminal (TE) to a plurality of mobile stations (MS1, MS2, MS3, MS4, MS6) over a public data packet network (INTERNET) and a mobile data packet network (GPRS-SYSTEM), the public data packets (PU-DP) are multi-casted through the public data packet network (INTERNET) by means of a multi-cast address (PU-MCA) in an overhead section (PU-H) of the public data packets (PU-DP). In addition, the public data packets (PU-DP) are multi-casted through at least

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

part of the mobile data packet network (GPRS-SYSTEM) by means of a private multi-cast address (PR-MCA) in an overhead section (PR-H) of private data packets (PR-DP) that tunnel the public data packets (PU-DP) through the mobile data packet network (GPRS-SYSTEM).

The invention according to independent claims 1, 11 and 15 differs from D1 by the access point which in D1 is a GGSN (Gateway GPRS Support node). Also, D1 does not cover the case where the GGSN cannot resolve the internet multicast addresss. It is clear in D1 that the GGSN must be able to relate the IP multicast address to the private multicast address of the GPRS network based on an address recognition device. The GGSN and the routing node are not considered to execute the same procedures as the access devices and the supporting access device. The CAPs of the claimed invention cannot be compared to the GGSN of document D1, since the function of the CAPs of the claimed invention corresponds to the function of a base station. The multicasting router is mentioned in D1 and so are the public multicast address recognition means and the address association means.

However, the invention according to the independent claims 1, 11 and 15 is novel, is considered to involve an inventive step and industrial applicable.

Also D2 and D3 disclose similar systems solving the problem of multicasting packets to stations connected to a radio network with the aid of servers, an Internet protocol gateway and Internet protocol network.

In D2 the Internet Protocol network includes a plurality of routers which are capable of utilizing a multicast address within a signal received from a sending source to direct the signal towards one of the plurality of base transceiver stations, and are further capable of utilizing the multicast address within the signal to direct a copy of the signal towards another one of the plurality of base transceiver stations (abstract and claims).

In D3 the cluster units are configured to be members of an IP multicast group specific to the cluster, the IGMP protocol is

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

used to obtain information about to which ports of the plurality of ports the cluster units are connected, the MAC address of a received IP packet is checked, and if said MAC address is a multicast MAC address, the IP destination address of said packet is compared to the unicast IP address shared by the cluster units, if the IP destination address of said packet is the same as the unicast IP address, the packet is forwarded to those ports, to which the cluster units were found to be connected (abstract and claims).

However, D2 and D3 both show distribution methods, wherein IP multicast addresses are again resolved based on multicast routing tables. D2 does not present any solution for unknown multicast addresses. D3 does not relate to a connection oriented network.

Thus, the invention according to independent claims 1, 11 and 15 is not anticipated by any of D1-D3.